

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number
WO 2004/032757 A3

(51) International Patent Classification⁷: **A61B 17/02**

(21) International Application Number:
PCT/US2003/031650

(22) International Filing Date: 6 October 2003 (06.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/416,370 4 October 2002 (04.10.2002) US

(71) Applicant (for all designated States except US): **TYCO HEALTHCARE GROUP, LP** [US/US]; 150 Glover Avenue, Norwalk, CT 06856 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **STEARNS, Ralph,**

A. [US/US]; 38 South Road, Bozrah, CT 06334 (US).
ORBAN, Joseph, P., III [US/US]; 78 Fallow Street, Norwalk, CT 06850 (US). **VIOLA, Frank, J.** [US/US]; 320 Greatquarter Road, Sandy Hook, CT 06482 (US).

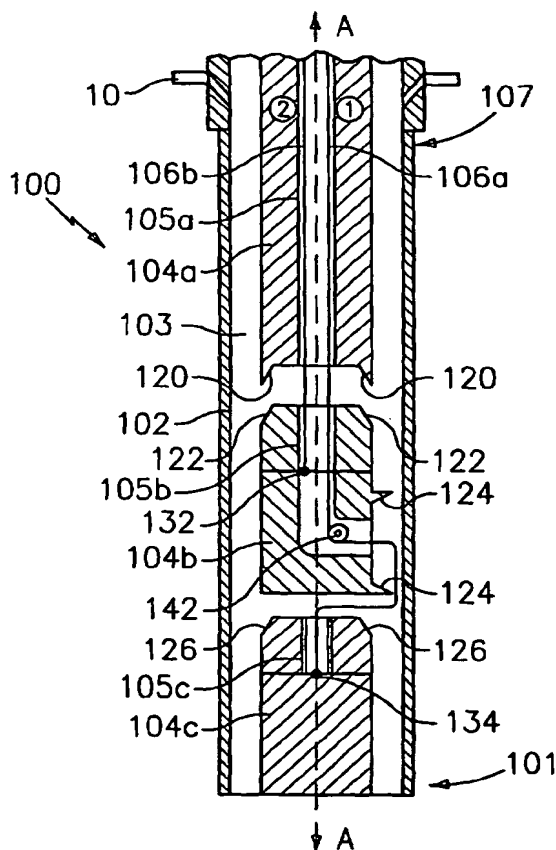
(74) Agents: **PERRY, Kimberly, V.** et al.; Tyco Healthcare Group LP, 10 Glover Avenue, Norwalk, CT 06850 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: **ENDOSCOPIC RETRACTOR**



(57) Abstract: The present disclosure relates to endoscopic retractors (100) including a shaft having at least a first section (104b) having a first mechanical interface (124) and a second section (104c) having a second mechanical interface (126) for engaging the first mechanical interface, the first section and the second section being selectively movable from a first, generally longitudinally-aligned configuration along an axis defined through the shaft and the first mechanical interface is disengaged from the second mechanical interface, to a second configuration wherein the second section is disposed at an angle relative to a longitudinal axis of the shaft and the first mechanical interface is engaged with the second mechanical interface. The retractor further includes at least one cable (106a) extending through the shaft and operatively secured to the second section. The cable is remotely actuatable to move the second section from the first to the second configuration upon selective translation of the cable.



ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:
15 July 2004

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No

PC1, 03/31650

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61B17/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 067 990 A (KIETURAKIS MACIEJ J) 30 May 2000 (2000-05-30) column 3, line 42 - column 5, line 25 -----	1-14, 16, 17, 20-24, 26, 42-44, 46, 47
X	WO 93/13713 A (MORAN PETER ;MCMAHON MICHAEL JOHN (GB)) 22 July 1993 (1993-07-22) abstract; figures 1, 2, 12A, 12B -----	1-3, 6-8, 21-24, 26, 42, 44, 46, 47
X	US 6 248 062 B1 (CORACI JR LEONARD ET AL) 19 June 2001 (2001-06-19) the whole document -----	1-3, 6-8, 21-24, 26, 42, 44, 46, 47

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

2 February 2004

Date of mailing of the international search report

28. 04. 2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Hamann, J

INTERNATIONAL SEARCH REPORT

Int'l application No.
CT/US 03/31650

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-28, 42-47

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-28,42-47

A retractor, comprising a shaft having at least a first section and a second section, and at least one cable.

2. claims: 29-35

An organ retractor, comprising a shaft and a plurality of finger elements operatively engagable with a distal end of the shaft.

3. claims: 36-41

An organ retractor, comprising a shaft being fabricated from a shape memory substance.

INTERNATIONAL SEARCH REPORT

International Application No

PC 33/31650

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6067990	A	30-05-2000	US 5787897 A 04-08-1998
			US 5558665 A 24-09-1996
			WO 9600030 A1 04-01-1996
WO 9313713	A	22-07-1993	AU 3263993 A 03-08-1993
			DE 69310345 D1 05-06-1997
			DE 69310345 T2 20-11-1997
			EP 0623004 A1 09-11-1994
			WO 9313713 A1 22-07-1993
			JP 3390436 B2 24-03-2003
			JP 7502914 T 30-03-1995
			US 5467763 A 21-11-1995
US 6248062	B1	19-06-2001	NONE